

WHERE DO ALL THE TOXINS GO? DO NOT WRITE ON THIS

Bioaccumulation is the build-up of chemicals in an organism's body- the longer an organism lives, the more it absorbs. When an older, large lake trout is caught, the concentration of toxins in its body could be a million times that of the original concentrations in the water. *Biomagnification* results when toxins become increasingly concentrated as they pass through the food chain. When a fish feeds on zooplankton, for example, the fish takes up toxins in all of the plankton it eats. In the fish, many of the toxins accumulate in its fatty tissues. When a gull or an eagle feeds on the fish, the bird takes up all of the toxins the fish has accumulated from all the contaminated organisms it has ever eaten. Therefore, the higher up an organism is in the food chain, the greater the amount of toxins it is likely to consume.

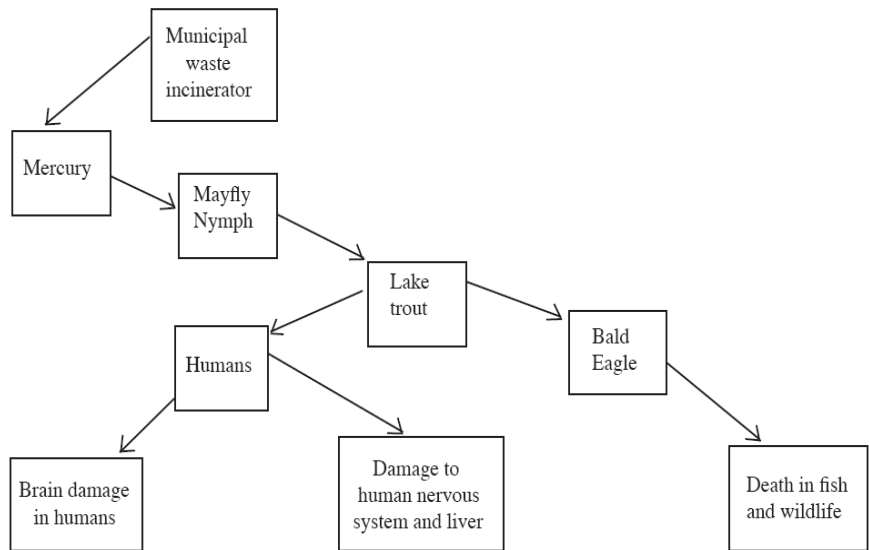
Objectives

When you have completed this activity, you should be able to describe how bioaccumulation and biomagnification of toxins in the food chain cause health disorders in humans and animals.

Materials:

Each group will need:

- Copy of Table 1
- Copy of human activities and industry cards
- 1 toxin card
- Copy of food chain cards
- Copy of effects of toxin cards
- Scissors
- Poster
- Glue



Procedure:

1. Grab a packet of materials.
2. Work in groups of 2 to make a "poster." First assemble a reasonable food chain from the cards you have. Label each trophic level. (producer, primary consumer, etc.)
3. Add the toxin card and all of the other cards in order to trace the toxin from its origin to its effects in humans and/or other animals. Table 1 will provide source and effect information on the toxins.

Conclusion Questions:

1. Briefly discuss the interactions of your food chain and how you linked them together.
2. With the use of the constructed food chain, explain what bioaccumulation and magnification are and how these factors cause health disorders in humans and animals.
3. List and explain different types of human activities that produce airborne toxins and what effects these toxins have on humans and animals.
4. Pick two other toxins from table 1. What are they used for and what effects do they have?